Commonwealth Office of Technology
Storage Virtualization Initiative

Background and Current Status

Storage virtualization refers to providing a logical, abstracted view of physical storage devices. It provides a way for many users or applications to access storage without being concerned with where or how that storage is physically located or managed. It enables the physical storage in an environment to be shared across multiple application servers, and physical devices behind the virtualization layer to be viewed and managed as if they were one large storage pool with no physical boundaries.

Virtualizing storage networks enables two key additional capabilities:

- The ability to mask or hide volumes from servers that are not authorized to access those volumes, providing an additional level of security.
- The ability to change and grow volumes on the fly to meet the needs of individual servers.

Essentially, anything other than a locally attached disk drive might be viewed in this light.

Typically, storage virtualization applies to larger SAN (storage area network) arrays, but it is just as accurately applied to the logical partitioning of a local desktop hard drive, redundant array of independent disks (RAID), volume management, virtual memory, file systems and virtual tape. A very simple example is folder redirection in Windows, which lets the information in a folder be stored on any network-accessible drive. Much more powerful (and more complex) approaches include SANs. Large enterprises have long benefited from SAN technologies, in which storage is uncoupled from servers and attached directly to the network. By sharing storage on the network, SANs enable highly scalable and flexible storage resource allocation, high efficiency backup solutions, and better storage utilization.

The Commonwealth of Kentucky uses IBM's virtualization product called the System Storage SAN Volume Controller. There are currently 56 terabytes of data managed by the SVC providing five 9's uptime for approximately 80 mission critical servers.